US Army Corps of Engineers®
Engineer Research and Development Center

Topographic Engineering Center
Terrain Analysis Branch/ Urban Team
Urban Tactical Planner™ (UTP)

Description and Background

Urban terrain information at your fingertips! In 1996, TEC developed a new product in response to the warfighter's growing need for up-to-date geospatial information describing the urban environment. This data set, the Urban Tactical Planner™ or UTP, provides the warfighter with an entirely new capability to assist in the planning and visualization of military operations in the world's urban areas. It will assist, for example, the planning and execution of Military Operations on Urban Terrain (MOUT), Support and Stabilization Operations (SASO), and threat assessment. It will also support Operations Other Than War (OOTW). The data set is kept as simple as possible, and a low-end PC notebook with CD-ROM running ArcGIS is capable of the intended services. Enhancements provide ArcMap format for those with ArcGIS and ArcReader format for those users without ArcGIS. Shapefiles are resident on the CD for those customers still using ArcView or wanting greater flexibility.

Key Capabilities

TEC has investigated the urban mapping problem and has developed an expeditious process to analyze, map and display layers of urban area information. This information, terrain and cultural, is presented and easily manipulated with the use of ArcGIS software -- a user-friendly, flexible, geospatial tool. The digital data formats in ArcGIS are very flexible and can be adjusted to meet specific customer needs. This software will run on a notebook PC and NT platform. The product is capable of exploiting numerous data inputs such as DTED, commercial imagery, NGA topographic products, and intelligence sources. TEC can produce this data set in about six weeks depending on the size of the urban area. The capability of meeting rapid response requirements is addressed by providing only mission essential data for valid DA requirements. Therefore, it is not inclusive nor strictly an intelligence data set in the traditional sense; it is a terrain analysis data set. The data set can be produced to operate at the unclassified level by using the appropriate data sources for that level (such as imagery, maps, and ground photos).

The urban environment is displayed as an aggregate of features that affect urban area operations, such as building form and function (broken out as polygons of like-building types), building height, vertical obstructions, terrain features, bridges, lines of communication, landmarks, etc. These features are shown as themes or layers that can be displayed, on-or-off, as decided by the user. Attribute tables that provide additional information, e.g., building data, vertical obstruction data, road and bridge data, are linked to these layers. In addition, with the click of a button, hot-links provide the user with more information: ground photos of the terrain and building types, and architectural drawings or site plans. These themes or layers are displayed on top of a map or image base at the user's discretion. Fly-throughs can be viewed through TerraExplorer.

The user can apply this data to their specific needs. For example, an Army aviator can display only those features that affect navigation (landmarks), route choice, and landing. Planners for ground operations can display urban areas that will likely be occupied by non-combatants, show the approach routes to town, and also display key terrain on their area of operation, such as a ridge surrounding the town or the tallest buildings in the town.

Each urban area is presented at varying degrees of detail. A user can show an overview of the area (showing relief and major routes for example), zoom into an urban view or larger scale, and finally down to a one square kilometer view of a selected site or sites within the urban area. The product can be tailored to specific customer requirements. The data are deliverable via Intelink, PKI, SIPRNET, OSIS, CD-ROM, and/or in hard copy output. A requestor can have TEC produce the data and product or TEC can provide data (images, maps, GIS files, etc.) to the customer for their own analysis using ArcGIS. A library of UTP's can be accessed using TerraExplorer on PKI, SIPRNET and JWICS. PKI site is http://www.tec.army.mil/ .

Product Development

Terrain Analysis Branch, Operations Division, Topographic Engineering Center, Engineer Research and Development Center, U.S. Army Corps of Engineers.

Current Status

The product has undergone various enhancements and is continuing to evolve. Requirements production started in FY98. TEC employs in-house and contract capabilities to generate this data set and product. Potential users can now view a prioritized list of cities that reflect national priorities to identify urban information requirements. This can be accessed on the TEC Intelink-S homepage (http://www.tec.army.smil.mil). A reprioritization or any new requirements can be submitted to the HQDA DCS G-2. Product specifications have been compiled. As of 7 November 2006, 90+ data sets have been completed. The newest versions are built with Arc Geodatabases utilizing NGA Feature Attribute Coding Catalogue structure for portability. Currently, the level of information over an urban area is tied to its priority. In 2003, an information-based approach was applied to more than 1,400 urban areas worldwide. Previously, UTPs were created in their entirety and the users had to wait until a complete UTP was produced before they received any information over an area. Now, users will get varying levels of information ranging from image-only up to full UTPs as the information is produced. Additionally, TerraExplorer models have been created and posted with UTP data over them in order to enhance the ease of use and visualization of the data. These data can be accessed with a free viewer and streamed over the network.

Point of Contact

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